

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : SANYO ELECTRIC CO LTD

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(72)Inventor : YOSHIMINE YUKIHIRO  
YAMAMOTO TAKESHI

### (54) SUBSTRATE HAVING TRANSPARENT CONDUCTIVE FILM AND SOLAR CELLS

#### (57)Abstract:

PROBLEM TO BE SOLVED: To provide a substrate having a transparent conductive film, in which cost is reduced and intensity is improved by forming a transparent conductive film of a tin oxide, having a major orientation crystal plane of (211) plane or (301) plane, and solar cells thereof.

SOLUTION: A transparent conductive film 2 is formed on a substrate 1 with a tin oxide having major orientation crystal plane of either a (211) plane or a (301) plane. A photoelectric layer 3 is formed with the transparent conductive film 2 side by stacking three semiconductor layers of p, i and n types of an amorphous semiconductor, and furthermore a metal electrode 4 having a metal such as Ag, Al or so on is formed on a backside electrode to form a photoelectric conversion device 10. Furthermore, power extracting lines 7 and 8 are formed, and backside safeguard members consisting of aluminum-foiled sandwich-type vinyl fluoride film and so on are placed. A photoelectric layer 3 of amorphous semiconductor is placed on the transparent conductive film 2 to increase intensity.

